

COMMENTS ON WASHINGTON DEPARTMENT OF ECOLOGY'S PROPOSED PERSISTENT BIOACCUMULATIVE TOXINS (PBT) RULE (173-333 WAC)

The current proposed rule is generally consistent with expectations based on discussion at the multiple stakeholder meetings with respect to the content of the initial PBT list. However, the proposed rule is deficient with respect to the overall process. Specifically, there is little to no detail on how Ecology will determine if a chemical is toxic or how chemicals on the PBT list will be selected for development of chemical action plans (CAPs). In addition, the proposed rule does not address the issue of acceptable risk, leaving the implication that any risk is unacceptable. Finally, contrary to discussions at the stakeholder meetings, Ecology has placed PCBs as a group on the draft PBT list without determining which congeners meet the PBT criteria in the proposed rule. These are significant deficiencies which effectively preclude any determination of how the rule will be implemented, and thus any determination of the overall efficacy of the proposed rule.

GENERAL COMMENT

1. The proposed rule makes no mention of what level of risk is acceptable.

As discussed at the stakeholder meetings, science can provide an estimate of risk but cannot make the determination of what level of risk is acceptable. Although PBT chemicals have the potential to pose risks based purely on their PBT characteristics, this does not mean that there is an actual risk present in any specific set of circumstances. Thus simply satisfying the PBT criteria does not demonstrate risk.

Because the ultimate goal of the proposed rule is to limit risk ("threat"), the rule should address this issue explicitly and criteria for action or inaction should be set.

The issue of risk could be addressed as part of the process of selecting chemicals from the PBT list for development of CAPs. Thus, each chemical on the PBT list would be subject to a preliminary risk assessment, and chemicals would be ranked based on their relative risks. CAPs would be developed for chemicals in the order in which they appear on this list. Alternatively, a risk assessment could be a central component of a CAP. This approach would logically require some initial ranking or prioritization of the PBT list itself (see comment 2 below), but this might be accomplished using some scoring system; for example, a system based on presence and quantity in Washington State as previously proposed by Ecology [1,2].

Considering the complexity associated with performing rigorous risk assessments, NCASI suggests that they be performed as part of developing CAPs. Thus, Ecology should modify the proposed rule to state this explicitly.

2. There is no clear process for selecting chemicals from the PBT list for development of CAPs.

The rule mentions a ranking process for prioritizing chemicals on the PBT list for development of CAPs. However, no information on this ranking scheme is provided. Informed comment is not possible without knowledge of how DOE will develop this ranking. As described, this

ranking will guide implementation, so the ranking process should be incorporated as part of the rule.

DOE implies or explicitly invokes a ranking process in numerous sections of the proposed rule:

173-333-310(3) – This section gives three categories into which chemicals on the PBT list will be placed but gives no reason for doing this (i.e., it provides no detail on how this categorization will be used). It would make sense if these three categories were used as a rough prioritization, with Category 1 chemicals targeted for development of CAPs, Category 2 chemicals targeted for additional study, and Category 3 chemicals put aside or perhaps targeted for biomonitoring only.

173-333-410(2)(a) – This section implies that DOE will prioritize chemicals with half-lives in soil or sediment >180 days above those with half-lives <180 days. This is scientifically rational, but exactly how this prioritization might mesh with, for example, the categories suggested in 173-333-310(3) is unclear. Would a Category 2 chemical with a half-life >180 days be prioritized over a Category 1 chemical with a half-life <180 days?

173-333-410(2)(b) – This section implies that DOE will prioritize chemicals with BCFs or BAFs >2000 above those with BCFs or BAFs <1000. Prioritizing chemicals with higher BCFs or BAFs makes scientific sense, but exactly how this prioritization fits in the overall scheme is unclear.

173-333-410 (3)(a)(i) – This section explicitly states that DOE will select chemicals for CAP development based on a relative ranking “based on Ecology’s evaluation of information on PBT characteristics, uses of the chemical in Washington, releases of the chemical in Washington, and the levels of the chemical present in the Washington environment.” While these factors are all relevant in determining the risk posed by a specific chemical, in order to be fully transparent and allow informed comment this ranking scheme must be fully described and should be incorporated into the rule. Does this language simply refer to the sections addressed above (Section 173-333-310(3) specifically)?

Based on the language in the proposed rule, it appears that Ecology is proposing the following:

- Chemicals on the PBT list will be placed in one of three categories based on available information/data, and only Category 1 chemicals will be targeted for CAPs.
- Chemicals in Category 1 will be ranked according to the criteria given in 173-333-410(2), and those with soil/sediment half-lives >180 days and BAFs or BCFs >2000 in combination with some toxicity score (see comment 3) will be given priority for CAP development.

As described, this is a logical approach to ranking/prioritizing chemicals for CAPs. Is this what Ecology intends? If so, the language in the proposed rule should be modified to clearly express this. If not, Ecology needs to modify the rule by incorporating some clearly defined scheme for ranking chemicals on the PBT list for use in prioritizing CAPs [1,2].

3. There is no clear process for determining if a chemical is toxic.

The proposed rule provides hard, quantitative criteria defining persistence and bioaccumulative potential, but nothing similar for defining a chemical as toxic. Thus, in essence, the determination of whether or not a chemical is “toxic” is left to Ecology’s best professional judgment. Comparing the toxicological rationale for listing PFOS [3], which are essentially non-carcinogenic and exhibit at worst “moderate acute toxicity” to mammals and aquatic organisms, to the rationale used to list, for example, 2,3,7,8-TCDD (a known carcinogen) suggests that under this paradigm a chemical might be listed based simply on suspicion of toxicity.

The proposed rule should incorporate a system for scoring or ranking chemicals based on what is known about their toxicity so that these decisions will be made in a systematic and transparent manner [1,2].

4. The PBT list must be chemical specific.

As noted in discussions at the stakeholder meetings, every chemical exhibits its own unique properties with respect to persistence, bioaccumulation, and toxicity. Therefore, the rule should not list chemical groups. Instead, application of the PBT criteria should be made on a chemical-specific (molecule-specific) basis, and the PBT list should identify individual chemicals (not groups). Ecology has, for the most part, already addressed this issue by listing specific molecules in the footnotes to the table in 173-333-310 when the list itself cites a chemical group. For example, footnotes identify the specific PAHs that meet the proposed rule’s PBT criteria. In addition, Ecology has provided data showing that these specific PAHs meet the PBT criteria [3]. Thus, the listing of PAHs in the table is functionally the listing of specific molecules. This is scientifically correct.

However, Ecology has also included PCBs as a group on the draft PBT list given in the proposed rule without citing the specific PCB congeners. Understanding that essentially all toxicity data for PCBs were derived based on Aroclor (or coplanar PCB) concentrations and that many of the mono- and di-chlorinated PCBs have $pK_{ow}s < 5$, it is clear that not all of the 209 PCB congeners would meet the PBT criteria. In fact, this situation illustrates why all listings should be on a chemical-specific basis.

Prior to full promulgation of this rule, Ecology must apply the PBT criteria adopted by the rule to PCBs on a congener-specific basis, and only those congeners meeting all the criteria should be included on the PBT list. Ecology has already done this for the other “chemical groups” included on the draft PBT list (PAH, PBDE, PCDD/DF, PCN, etc.), and PCBs should be treated likewise.

Ecology also left references to chemical groups or groups of PBTs throughout the proposed rule. All these references should be deleted.

REFERENCES

1. Gallagher, M. 2000. *Proposed strategy to continually reduce persistent, bioaccumulative toxins (PBTs) in Washington State*. Publication No. 00-03-054. Washington Department of Ecology: Olympia. (December 2000).
2. Washington Department of Ecology. 2002. *Ecology PBT working list: Responses to public comments on Appendix E*. Publication No. 02-03-030. Washington Department of Ecology: Olympia. (June 2002).
3. Washington Department of Ecology. 2004. *Summary technical background information for the draft PBT list*. Washington Department of Ecology: Olympia. (December 2004).
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